Data Governance and Valuing NOAA Research and Observations

PERFORMANCE, RISK, AND SOCIAL SCIENCE OFFICE

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Introduction

Performance, Risk, and Social Science Office

Decision support to NOAA Leadership on:

- Represent NOAA in high-level economic-related policy discussions
- Performance and Strategic Planning
- Economics and Evaluation
- Risk Management
- Project Management

The Chief Economist Team

Executive Decision Support

What We Do

Executive decision support by integrating social, behavioral, and economic science in NOAA's missions and priorities.

- Guidance and reviews for the development of robust economic analysis
- Evidence and statistics for the NOAA budget proposals and justification
- International and Interagency coordination
- Economic Valuation, Societal Benefits, Market Research & Development

Marine Economy and Natural Capital Accounting

- NOAA/BEA Marine Economy Satellite Account

bea
Bureau of Economic Analysis

News Release

EMBARGOED UNTIL 10:00 a.m. EDT, Thursday, June 9, 2022 BEA 22-24

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Marine Economy Satellite Account, 2020

New statistics for 2020; prior years updated

The Marine Economy Satellite Account (MESA) statistics released today by the U.S. Bureau of Economic Analysis (BEA) show the marine economy accounted for 1.7 percent (table 3), or $361.4 billion (table 2), of current-dollar U.S. gross domestic product (GDP) in 2020 and 1.7 percent, or $610.3 billion, of current-dollar gross output (table 8).

Real (inflation-adjusted) GDP for the marine economy decreased 5.8 percent from 2019 to 2020, compared with a 3.4 percent decrease for the overall U.S. economy. Real gross output for the marine economy decreased 8.5 percent, while marine economy compensation decreased 1.2 percent, and employment decreased 10.8 percent.

Percent Change in Marine Economy Compared to U.S. Economy, 2020

U.S. Bureau of Economic Analysis

Administration

BRIEFING ROOM

Accounting for Nature on Earth Day 2022

APRIL 24, 2022 • OSTP BLOG

By Jane Lubchenco, Deputy Director for Climate and the Environment; Heather Tallis, Assistant Director for Biodiversity and Conservation Science; and Eli Fenichel, Assistant Director for Natural Resource Economics and Accounting

It is human nature that we often appreciate things only when they are gone. A personal loss. Money spent. Time we can't get back. It is also increasingly true of nature and its many benefits.

We notice the importance of bees far more when they stop coming to pollinate our crops, and farmers have to truck hives around the country to keep our food supply going. We miss the enhanced protection from flooding when barrier islands, sand dunes, or wetlands are no longer there to dampen the onslaught of powerful storms. And we appreciate the power of a forest to stabilize soil and absorb rainwater more when the forest is gone and mudslides engulf downslope communities. It doesn't have to be this way.

One reason we are losing nature is that we're not paying attention, not tracking changes, and not recognizing the full value of what's at hand. Now is the time to start paying attention so we can act before it's too late.

- OSTP Natural Capital Accounting
  - "Advance both the knowledge and the development of policy-applications of environmental-economic accounting, and in particular for ecosystem accounting"

Social Science and Enterprise Data

Valuing Ocean Observations and Research

Global Ocean Monitoring and Observing Strategic Plan

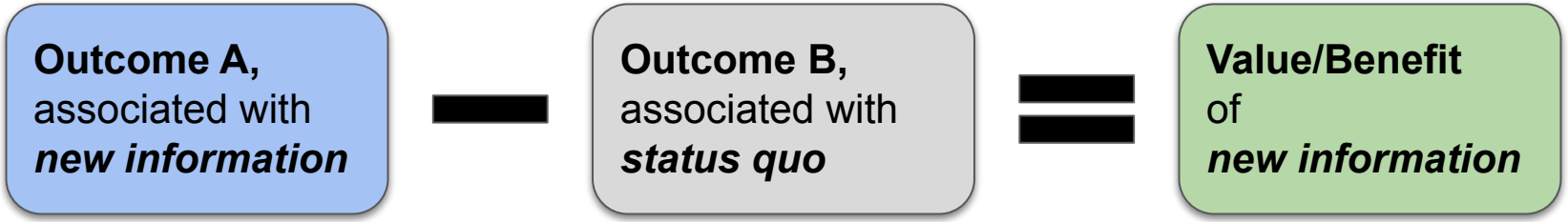
- Goal 1 Sustain global ocean monitoring and observing for long-term continuity and improve data quality and system efficiency.
- **Goal 2 Innovate and evolve the ocean observing network to address emerging needs and opportunities for ocean health, ocean economy, weather and climate.**
- **Goal 3 Improve the value, accessibility, and usability of observational data for informed decision-making.**
- Goal 4 Develop and capitalize on the expertise, diversity and capacity of the ocean observing enterprise.

Connecting Data and Economics

- "Data have value when they are used in decision making. If not, then the economic value of such data/information is effectively zero."
  - Williamson et al. (2002). **The Socio-Economic Value of Improved Weather and Climate Information**
- Need to understand how NOAA information, and derived products and services connect to society and the decisions made with their information.
  - Requires sophisticated enterprise and metadata management
- Specifically for GOMO:
  - Who are the stakeholders for ocean monitoring?
    - Both users and beneficiaries (e.g. climate scientists vs public)
    - What information do they access, when, and how?
    - What is the benefit of the NOAA (and affiliated) research and information?

The Value of Information (VOI) Framework

- Value of information is realized when **information influences <u>decisions</u>** that **affect outcomes**.

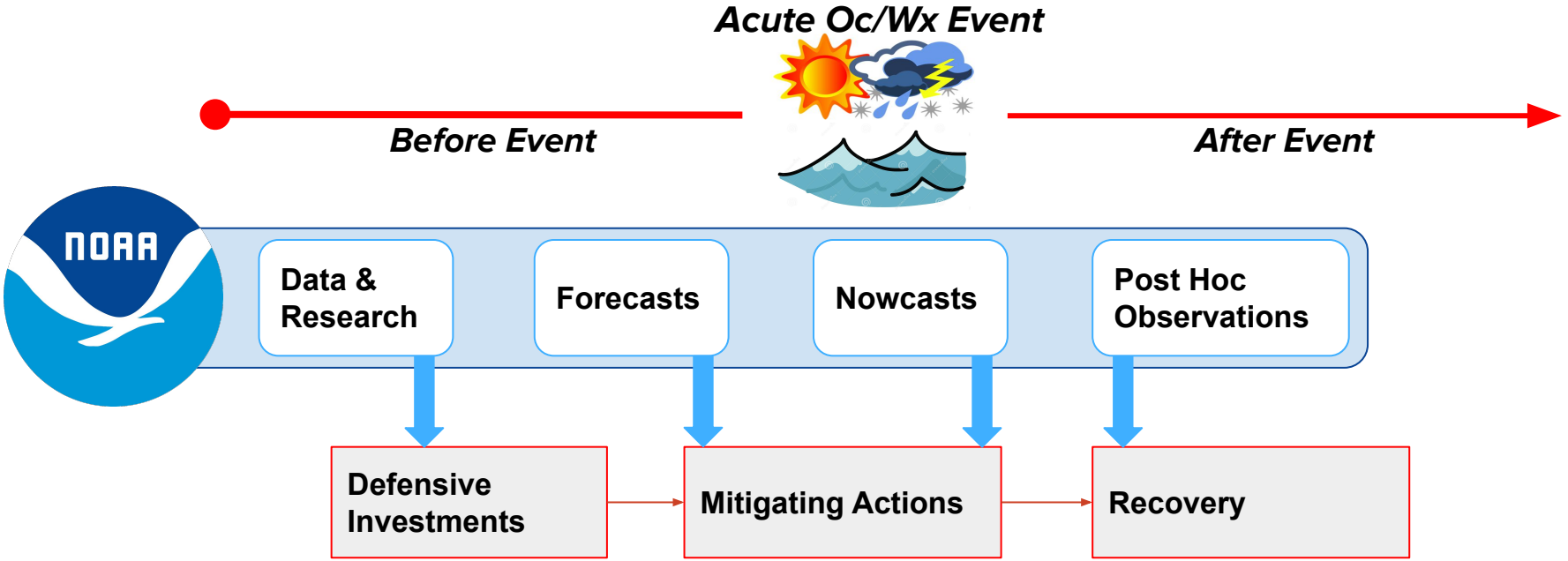


- **<u>Benefit</u> of new information is <u>difference</u>** between outcome with new information and without it.
- When considering the benefit of an existing or status quo system, use the next best alternative as the counterfactual (Outcome B)

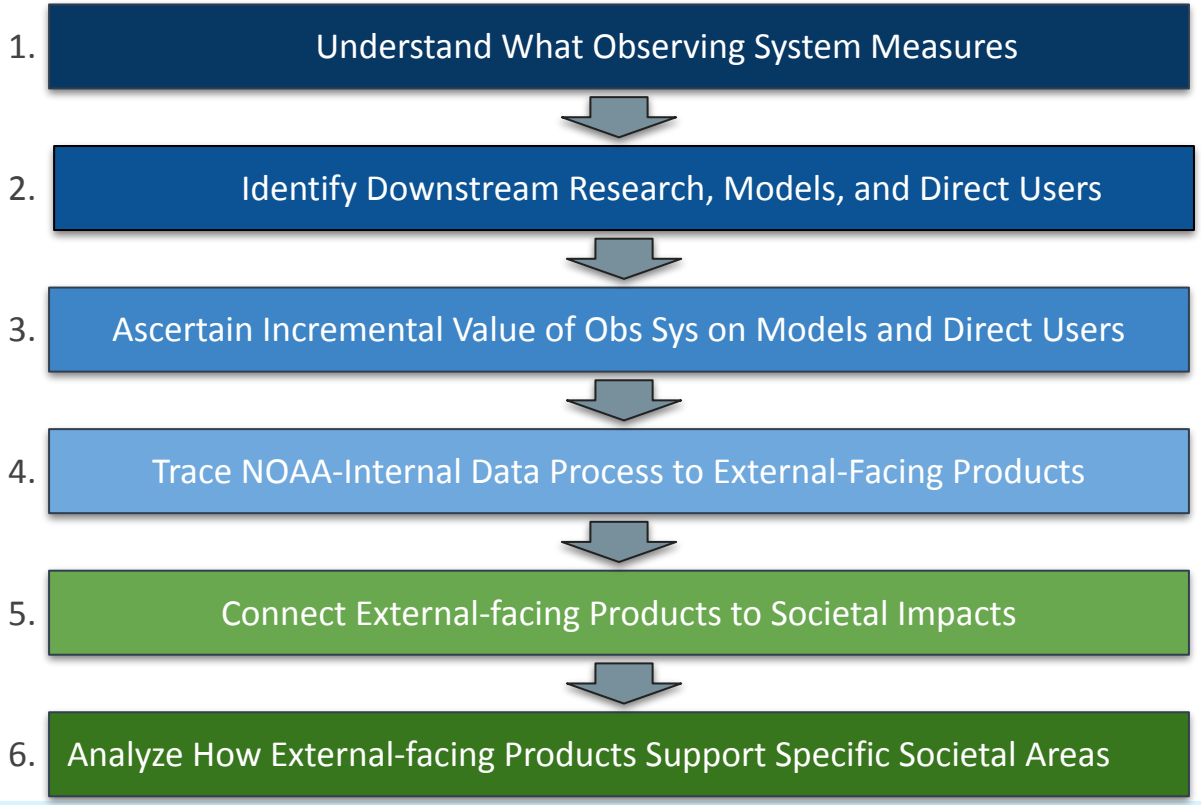
Valuing Research

Where NOAA Creates Value

Where NOAA Data Creates Value



Connecting NOAA to Societal Impacts



Supporting Laws, Executive Orders and Other Mandates

- Weather Act:
  - “for the protection of life and property and the enhancement of the national economy”
- Evidence Act:
  - “requires agency data to be accessible and requires agencies to plan to develop statistical evidence to support policymaking.”
- EO on Climate:
  - “The United States will also move quickly to build resilience, both at home and abroad, against the impacts of climate change…”
- EO on Racial Equity:
  - “the Federal Government should pursue a comprehensive approach to advancing equity for all”

Enhancing Value through Data Governance

The FAIR Doctrine

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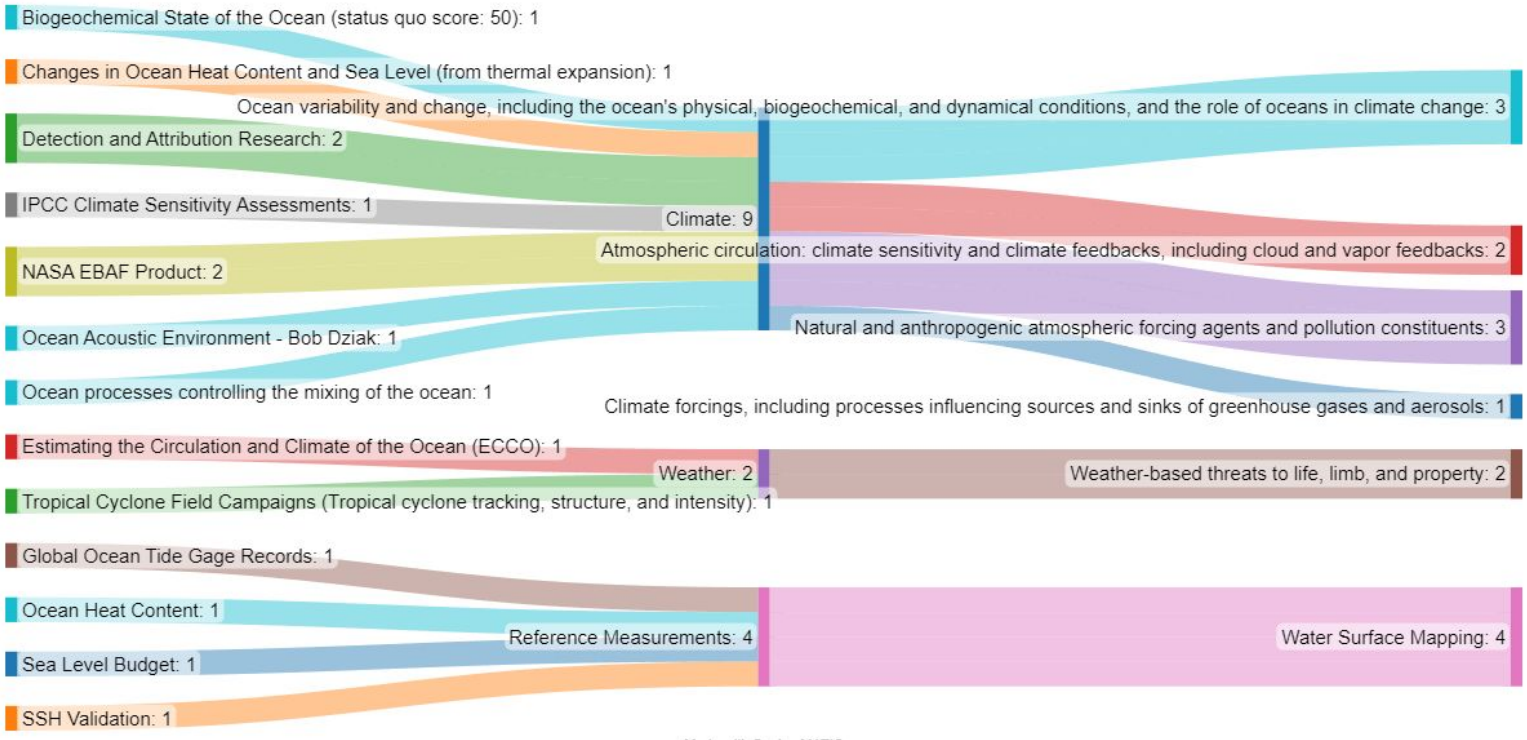
- FAIR Doctrine
  - Findability - Machine-readable metadata
  - Accessibility - Open and accessible where possible
  - Interoperability - Leverage existing taxonomies and standards
  - Reusability - Strong codebook

Customer Experience (CX) Initiative

- External user aka customer's perspective on interactions with an organization across an entire customer lifecycle and the outcomes of that interaction.
  - Not just customer support
- Ensure effectiveness, ease of use, and positive experience
  - Ease of finding and obtaining NOAA data
  - Ease of using NOAA data and services
  - NOAA effectiveness in meeting clients' data and service needs
  - Confidence in the accuracy and reliability of NOAA data and services

ARGO Float Value Chain (EOA2016)



*NESDIS/TPIO NOSIA and Notional Analysis

ARGO Floats (NOSIA Products)

20th Century Reanalysis	Global Ocean Data Assimilation System Model	Ocean Salinity Content
Analysis of State of the Climate System	High Seas Forecast	Ocean Surface and Sea State Analysis and Forecast
Atlantic Meridional Overturning Circulation Heat and Mass Tra	HYbrid Coordinate Ocean Model	Ocean Temperature and Salinity Variability Monitoring
Atlantic Meridional Overturning Circulation Research	International Research Institute for Climate and Society Climate Model	Ocean-Atmosphere Heat Flux Analyses
Atlantic Meridional Overturning Circulation Research	Intra-seasonal to Inter-annual time frame Climate Predictions	Offshore Waters Forecast
Atmospheric Model Intercomparison Project II Reanalysis	Intraseasonal to Interannual Prediction Research	Pan-Arctic Ice Ocean Modeling and Assimilation System
Atmospheric Reanalysis	Model Reanalysis	Rapid Refresh Model
Baseline Seafloor Morphology Characterization	Monitoring of Ocean variability, Time Series	Real-Time Ocean Forecast System
Baseline Substrate Characterization	National Centers for Environmental Prediction/National Center for Atm	Real-Time Ocean Forecast System
Baseline Water Column Characterization	National Ocean Service Gulf of Mexico Model	Regional Ocean Modeling System
Bassis Rift Model	Navy Coupled Ocean Data Assimilation	Sea Level Change Research
Buoy Deployment Research	NCEP-Department of Energy Reanalysis 2	Sea Level Variations Monitoring
California Current variability and impacts on ecosystems	North American Regional Reanalysis	Sea Surface Temperature Analysis
Climate and Extreme Weather Events Research	NorthEast Coast Ocean Forecast System	Sea Surface Temperature Analysis
Climate Forecast System Model	Objectively Analyzed Air-Sea Fluxes	Sea Surface Temperature Analysis
Climate Forecast System Reanalysis	Objectively Analyzed Air-Sea Fluxes	Sea Surface Temperature Optimum Interpolation Analysis
Climate Models	Ocean Acidification Program	Sea Surface Temperature Optimum Interpolation Analysis
Climate Variability, Predictability, Models Research	Ocean Circulation, South Pacific Western Boundary Current Research	State of the Climate, Bulletin of the AMS, Annual Data Reports
Community Atmosphere Model	Ocean Currents Model Development	Telepresence
Coupled Model Intercomparison Project	Ocean Currents Monitoring	Texas General Land Office Wind-driven Circulation Model
Development of Data Assimilation Climate Models	Ocean Education Products	Tropical Atmosphere Ocean Moored Buoy Array Research
Dynamics of the Madden-Julian Oscillation Field Campaign in I	Ocean Heat and Fresh Water Content	Unified Surface Analysis
Finite Volume Community Ocean Model	Ocean Heat Content	Video and Ship Survey information Outreach
Generalized Digital Environmental Model	Ocean Observing System Technologies Development	Woods Hole Oceanographic Institution Heat/Moisture Flux Product
Global assessments of surface currents	Ocean Reanalysis Research	Woods Hole Oceanographic Institution Heat/Moisture Flux Product
		World Ocean Database

Questions?

Thank you!

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